STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7590

Petition of Green Mountain Power Corporation for a Certificate of Public Good approving the purchase of electricity pursuant to a Power Purchase Agreement with Granite Reliable Power, LLC	))))	Hearing at Montpelier, Vermont March 22, 2010

Order entered: 5/13/2010

PRESENT: Ann Bishop, Hearing Officer

APPEARANCES: Laura Beliveau, Esq.
for Vermont Department of Public Service

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for Green Mountain Power Corporation

I. INTRODUCTION

Green Mountain Power Corporation ("GMP" or the "Company") proposes to enter into a power purchase agreement ("PPA") with Granite Reliable Power, LLC ("Granite"), for a portion of the capacity, energy and associated Renewable Energy Certificates ("RECs") from a 99-MW wind project that is under development in Coos County, New Hampshire (the "Project"). The proposed PPA would meet approximately 3.8% of GMP's annual energy requirements and has a term of 20 years.

The purchase by GMP from outside Vermont of electric capacity or energy representing more than one percent of its historic peak demand for a term exceeding five years requires the issuance of a certificate of public good ("CPG") by the Public Service Board ("Board") under 30 V.S.A. § 248(a)(1). Before issuing a CPG under Section 248 with respect to such purchase, the Board must find that the purchase will promote the general good of the state and that the applicable criteria set forth in Section 248(b) are satisfied. As set forth below, I find that the

proposed purchase of power under the PPA satisfies the applicable criteria under Section 248(b) and will promote the general good of the state and, accordingly, recommend to the Board that it issue a CPG.

Over the next several years, GMP will need to replace a significant portion of its committed power resources as existing supply arrangements expire. The PPA results from a competitive solicitation process and is intended to provide a long-term stably priced source of renewable power to meet a relatively small portion of the anticipated need for new power-supply commitments.

II. PROCEDURAL HISTORY

On January 15, 2010, GMP filed its petition for a CPG, together with prefiled testimony and exhibits.

Also on January 15, 2010, Central Vermont Public Service Corporation ("CVPS") filed a petition requesting a CPG to purchase power from the Project pursuant to a similar, but separate, contract with Granite. CVPS's petition is being considered in Docket 7589. Both dockets were consolidated for the purpose of hearing. The hearing officers also sought to coordinate their efforts throughout the proceedings and in the development of proposals for decision to the extent that was possible given the somewhat different evidence CVPS and GMP each submitted in support of their respective petitions.

On February 4, 2010, a prehearing conference was held jointly in this docket and docket 7589.

On March 3, 2010, a public hearing was held in both dockets via Vermont Interactive Television at sites in Bennington, Brattleboro, Lyndonville, Middlebury, Montpelier, Randolph, Rutland, Springfield, St. Albans, Waterbury, Williston and White River Junction. No member of the public spoke at the public hearing, or filed written comments with the Board.

On March 11, 2010, the Vermont Agency of Natural Resources ("ANR") filed a letter stating that it had received a copy of GMP's petition, but would not be offering evidence or recommendations in this proceeding since the petition does not involve issues related to Section

248(b)(5). ANR stated that it deferred to the Vermont Department of Public Service ("DPS") to represent the position of the State in this matter.

On March 17, 2010, GMP filed a Memorandum of Understanding dated March 17, 2010, ("MOU") between GMP and the DPS. In the MOU, the parties agree that the the Board should find that the purchase of electricity and capacity by GMP under the PPA is in the general good of the state, and that the Board should issue a certificate to that effect.[1]

On March 19, 2010, the Clerk of the Board issued a memorandum including questions for the parties to address at the technical hearing.

On March 22, 2010, a technical hearing was held in both this docket and Docket 7589. At the technical hearing, the Hearing Officers in both dockets requested that the parties brief their views on several issues related to the fact that the PPA is the first power purchase to require Board approval since the creation of the Energy Efficiency Utility ("EEU") and the passage of the Sustainably Priced Energy Enterprise Development program ("SPEED").[2]

On April 14, 2010, the DPS filed a letter commenting on GMP's brief and Proposed Decision.[3]

On April 15, 2010, GMP filed its brief and its Proposed Decision.

III. FINDINGS

Based on the entire record, including the petition, the prefiled testimony, the evidence presented at the technical hearing, the MOU and the other admitted exhibits, I conclude that this matter is ready for decision and report the following findings to the Board in accordance with 30 V.S.A. § 8.

1. GMP is a company as defined by 30 V.S.A. § 201, provides electric power in the state of Vermont and as such is subject to the Board's jurisdiction pursuant to 30 V.S.A. § 203. Petition at 1.

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1. Exh. GMP-8 at 3.

2. *See*, 30 V.S.A. § 8001, *et seq.*

3. The DPS filed its comments before the Board received those GMP filings.

2. GMP has entered into a PPA dated December 16, 2009, with Granite, a Delaware limited liability company, to purchase a portion of the output of a planned wind generation facility known as the Granite Reliable Power Windpark located in Coos County, New Hampshire. Petition at 1.

The Project

3. The Project will consist of up to 33 wind turbines with a capacity of 3 MW each, resulting in an overall output rating of up to 99 MW. The turbines will be located along approximately 6.5 miles of ridgeline that includes Dixville Peak, Mount Kelsey, Owlhead Mountain, and unnamed lower-elevation ridges. The Project will also include a set of collector lines, a substation near the southernmost group of turbines, a maintenance building and lay-down area, and a 5.8-mile, 115 kV transmission line interconnecting the substation with an existing transmission line that runs between Milan and Groveton, New Hampshire. Smith pf. at 6-7.

4. The Project will be located entirely outside Vermont and no new Vermont transmission lines will be required to import Project power. The Project will have only limited visibility from a very limited portion of Vermont (i.e., from Monadnock Mountain in Lemington, Vermont, about 11 miles away). Smith pf. at 37.

5. The Project's power will be intermittent. The Project's annual average capacity factor is expected to be approximately 35 percent. This capacity factor is consistent with, although toward the high end of, estimates of output from other utility-scale wind projects GMP has encountered. Smith pf. at 18-19, 21.

6. The Project's actual output can be expected to fluctuate meaningfully around estimated average values based on actual wind conditions, with the magnitude of the variance depending on the time frame. In particular, output during individual hours will vary widely, from zero up to the Project capacity. Over time, periods of high and low wind will tend to offset, converging toward the long-term averages. It is reasonable to expect the annual project output to vary with a standard deviation of roughly 9 percent, with the standard deviation for individual months on the order of 20 percent. Smith pf. at 21.

7. The Project's output is expected to be markedly greater in the winter. There is a modest projected bias toward higher production values in overnight hours, which GMP expects to tip the balance of output slightly toward the commercial off-peak hours. These features of the projected output pattern are generally consistent with GMP's experience with its Searsburg, Vermont, wind generation plant and with GMP's understanding of projected output profiles from other land-based wind projects in the Northeast. Smith pf. at 19-20.

The Terms of the PPA

8. Under the PPA, GMP will purchase 25 percent of the Project's output, on a plant-contingent basis, for 20 years, beginning no earlier than April 2012. The Project output to be purchased by GMP includes energy, capacity and RECs, with the exception that GMP will not purchase capacity in the first five years. Smith pf. at 4, 7.

9. Since the Project's total output is planned to be about 99 MW, GMP expects its purchase share to be about 25 MW. This purchase would provide an estimated 8 to 9 MW of average net output over the course of a year, representing approximately 76,000 MWh per year. This is about 3.8% of GMP's projected annual energy requirements initially, and a similar fraction over time, depending on actual project performance and trends in customer electricity requirements. Smith pf. at 4, 18-19.

10. Under the PPA, GMP will only pay for energy, capacity, and RECs that are actually produced. Smith pf. at 5.

11. The PPA provides for stable prices, escalating at a fixed (and modest) rate. Smith pf. at 22.

12. The PPA includes separate pricing for peak and off-peak hours. Smith pf. at 21.

13. CVPS has signed a similar power purchase agreement under which it will purchase 35 percent of the Project's output. In the event that CVPS defaults, Granite has the right (but not the obligation) to increase the GMP PPA percentage. If Granite exercises this option, the price of energy and RECs to GMP will be reduced significantly. In exchange for this option, GMP received a PPA price that is lower than it would have otherwise been. Smith pf. at 29-30.

14. The delivery point for the energy purchases is the ISO-New England, Inc. ("ISO-NE") designated node expected to be located at a 115 kV Paris Switching Station located in Dummer, NH. For capacity, this delivery point will result in the Project being recognized in the ISO-NE "Rest-of-Pool" settlement and reliability grouping. ISO-NE designation of both delivery locations (energy and capacity) is subject to revision throughout the life of the contract. Smith pf. at 7-8.

15. The PPA contains other provisions that are relatively standard for power purchase agreements that relate to, among other things, audit rights, scheduling, default, and *force majeure*. Smith pf. at 8.

16. The PPA does not contain credit provisions that would require either party to post additional financial assurances (i.e., collateral) based on corporate credit ratings to secure their responsibilities under the contract. As a result, neither party has a right to terminate or declare a contract default solely on the basis of financial standing (and therefore inability to provide such collateral). Smith pf. at 8.

17. The default and termination provisions of the PPA are more explicitly based on failure to pay for delivery and failure to achieve all of the required approvals for the Project and the purchase in a timely manner. Smith pf. at 9.

MOU

18. The parties to the MOU agree that the PPA is in the general good of the state, and that the Board should issue a CPG to that effect. The parties to the MOU also agree that the acquisition of power by GMP under the PPA meets each of the applicable criteria under 30 V.S.A. § 248(b). Exh. GMP-8 at 3-4.

Non-Applicability of Certain Criteria

[30 V.S.A. §§ 248(b)(1), 248(b)(5), 248(b)(9)]

Sections 248(b)(1) and (5) apply only to in-state facilities. Because the Project is located entirely in New Hampshire, the Board does not need to address these criteria. In addition, the Project does not involve a waste-to-energy facility for purposes of § 248(b)(9).

Present and Future Demand for Service

[30 V.S.A. § 248(b)(2)]

19. GMP's purchase under the PPA is required to meet the present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy-conservation programs and energy-efficiency measures, including but not limited to those developed pursuant to the provisions of subsection 209(d), section 218c and subsection 218(b) of Title 30. *See* findings 20 to 27, below; exh. GMP-8 at 3; Smith pf. at 17.

20. About three quarters of GMP's current power supply sources will expire between 2012 and 2015, leaving GMP with a need for substantial new resources, particularly long-term ones that provide price stability. GMP is planning to replace a significant portion of the expiring supplies with new renewable resources, including the PPA. Smith pf. at 17.

Energy Efficiency

21. It is reasonable to expect that some significant amount of future energy efficiency can be obtained at an effective cost lower than the price of the Granite PPA. It is not realistic, however, to expect that cost-effective energy efficiency or other demand-side resources could meet anything close to the amount of GMP's resource needs. This is due, in part, to: (1) the large magnitude of GMP's resource needs; (2) the fact that Vermont has already aggressively pursued electric energy efficiency and is expected to continue to do so (with or without the Granite purchase); and (3) the prospect that energy-efficiency costs will increase over time (that is, the prospect that the "yield" from energy-efficiency expenditures will decrease over time) as the baseline efficiency of electricity end uses increases. Smith pf. at 17-18.

22. In estimating its future power needs, GMP has assumed that Vermont will continue to deliver an aggressive package of energy-efficiency measures. Specifically, GMP has assumed that the electricity consumption of its customers will increase only modestly over the long term, despite an increasing customer count. If the future electricity requirements of GMP customers actually increase more meaningfully over time, GMP's resource needs will obviously be greater than assumed. Smith pf. at 18; exh. GMP-2.

Renewable Energy

23. GMP's purchase under the PPA is consistent with, at a minimum, the following renewable state energy goals (30 V.S.A. § 8001):

- Providing an incentive for the state's retail electricity providers to enter into affordable, long-term, stably priced renewable energy contracts that mitigate market price fluctuation for Vermonters;
- Developing viable markets for renewable energy and energy-efficiency projects; and
- Contributing to reductions in global climate change and anticipating the impacts on the state's economy that might be caused by federal regulation designed to attain those reductions.

Smith pf. at 25-26.

24. GMP estimates that approximately 1.8 percent of its load is currently being met with "new renewable resources" as defined in 30 V.S.A. § 8002(4). Exh. GMP-6; tr. 3/22/10 at 23 (Smith).

25. Section 8005(2) of Title 30 establishes a goal that 20 percent of total statewide electric sales before July 1, 2017, be generated by SPEED resources. GMP estimates that, counting current resources that will still be in its portfolio in 2017 plus the PPA, approximately 5.6 percent of its load will be met with resources that would count towards meeting this goal.[4] If other identified potential new renewable resources that are the subjects of other pending Board proceedings are added to this amount, GMP estimates that approximately 9.2 percent of its load will be met with resources that would count towards meeting this goal. Exh. GMP-6; tr. 3/22/10 at 23-24, 30-31 (Smith); 30 V.S.A. § 8005(2).

26. Because GMP's purchase under the PPA is from a new renewable resource, it is needed to help meet the state's aggressive renewable energy goals. Smith pf. at 5.

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4. Exh. GMP-6 shows that current resources that will still be in GMP's portfolio in 2017 will provide 35,536 MWh, and the PPA will provide an additional 76,650 MWh. GMP's load is estimated to be approximately 2,000,000 MWh/yr. GMP's witness testified that, given this information, it would be a simple mathematical calculation to derive the percentage of GMP's load that would be met by these resources. Tr. 3/22/10 at 30-31 (Smith). I, therefore, performed the following calculation: (35,536 + 76,650)/2,000,000*100 = 5.6 percent.

27. GMP's retail electric sales in calendar year 2008 were approximately 50,000 MWh lower than its retail electric sales in calendar year 2005. Tr. 3/22/10 at 26 (Smith).

Discussion

With the expiration of major existing power supply contracts over the next several years, GMP's committed power supply resources will diminish significantly.[5] Accordingly, there is an established need for GMP to enter into significant new supply arrangements to meet present and future demand for service. The PPA is intended to meet a small portion of this need.

It is apparent that the gap between present and future demand for service and the supply arrangements that GMP currently has in place to meet that need beginning in 2012 is so great that future demand could not be entirely met in a more cost-effective manner through energy-conservation programs and measures and energy-efficiency and load-management measures. While it is conceivable that the entire 8-9 MW of output that GMP anticipates it will purchase under the PPA could be met in a more cost-effective manner through non-generation alternatives, this particular purchase should not be viewed in isolation. Rather, the PPA must be seen in a broader context in terms of the contribution (albeit, relatively small) that the PPA makes in bridging the large gap between GMP's projected future demand for power and the Company's committed supply resources. To do otherwise might have the perverse effect of discriminating against smaller and longer-term power-supply arrangements in favor of large and shorter-term supply contracts as non-generation alternatives could not fully offset the need that would be met by larger contracts, and shorter-term arrangements that may not require a CPG.[6]

The broader context of GMP's overall need makes it clear, at least at this stage of the committed-power-supply-replacement process, that this purchase is required to meet the need for present and future demand for service which could not otherwise be provided in a more

5. *See* exh. GMP-2 for an indication of the magnitude of the anticipated shortfall between power demand and supply in future years as existing contracts expire.

6. Pursuant to Section 248(a)(1), a CPG is not required for power purchase agreements with a term of five years or less.

cost-effective manner through energy-conservation programs and measures and energy-efficiency and load-management measures.

In addition, the PPA will further the renewable energy goals set forth in Chapter 89 of Title 30. The power to be purchased from Granite Reliable will constitute "new renewable energy" as defined under 30 V.S.A. § 8002(3). Because GMP is purchasing the power generated by the Project under a long-term contract, the purchase would count as an eligible resource for purposes of 30 V.S.A. § 8005(d)(1) and (2) under 30 V.S.A. § 8005(d)(3).

Given that GMP is Vermont's second-largest electric distribution utility, and the fact that only 1.8 percent of GMP's load is currently being met with new renewable resources, it is likely that GMP's long-term power-supply portfolio will need to include some additional new renewable resources, if the goals set forth in Chapter 89 of Title 30, particularly the 20% goal set forth in Section 8005(d)(2), are to be met. Even though the exact extent of GMP's ultimate need for new renewable resources in 2017 is undetermined at this time, it is appropriate for GMP to make a good-faith effort to meet these new renewable objectives, policies and requirements as it assembles a long-term supply portfolio for the future.[7] GMP acknowledges in its brief that the PPA is part of such an effort.[8]

While the DPS states that GMP's brief "fairly reflects" the DPS's position, it also asserts that "SPEED goals should not provide the basis for support of [the PPA]."[9] The DPS notes that the renewable portfolio standards in Section 8004(d) would require GMP to rely on new renewable resources only to cover incremental energy growth from 2005 to 2012 and that current projections indicate that load growth will be negligible for that period. In addition, the DPS

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7. One of the SPEED goals is based on a percentage of total statewide electric retail sales in 2017. 30 V.S.A. § 8005(d)(2).

8. The PPA "represents a well located, out-of-state resource procured as part of a good-faith effort to comply with the goals set forth by the state legislature, which is also consistent with the Company's least-cost planning efforts." GMP Brief at 6-7.

9. DPS letter, filed on April 14, 2010, regarding briefs and proposed findings of fact filed by CVPS and GMP with respect to the approval of their purchases from Granite.

observes that GMP "would face minimal consequences" if it does not satisfy the goals set forth in Section 8005(d)(1).[10]

I am not persuaded by the DPS's arguments. State law has established objectives for renewable energy that are relevant to the power-supply-portfolio decisions of Vermont electric distribution utilities such as GMP. Based on the testimony offered in this docket, the DPS appears correct in its assessment that load growth is likely to be negligible between 2005 and 2012, although some minor uncertainty remains. However, even if incremental load growth is minimal for purposes of the new-renewable-resource requirements in Section 8004(b)(1), the requirements of Section 8005(d)(1) and the objectives of Section 8005(d)(2) would still be relevant. Section 8005(d)(2) sets a state goal "to assure that 20 percent of total statewide electric retail sales before July 1, 2017 shall be generated by SPEED resources." The fact that there may be minimal or even no consequences for GMP if the renewable-energy objectives set forth in state law are not achieved should not be relevant to GMP's conduct as it takes account of such objectives and requirements in assembling its long-term supply portfolio. Aside from the effect of these objectives and requirements on GMP, the policies, objectives and requirements of Chapter 89 (as well as the general state energy policy set forth in 30 V.S.A. § 202a) are relevant to the Board's decision-making process. The Board cannot ignore these objectives and policies in determining whether a particular power purchase or generation project promotes the general good of the state and justifies the issuance of a CPG.

GMP contends that the passage of the SPEED legislation should affect the Board's evaluation of power purchase contracts. It asserts that the Board should consider the SPEED legislation to be "guidance" regarding the importance of SPEED resources' environmental and other externalities under the societal cost-effectiveness test for the purposes of the Board's Section 248 review of such resources.[11] While such consideration may be appropriate, also relevant to the Board's review is the issue of whether a power purchase contract furthers the goals set forth in Chapter 89. This does not mean that the SPEED legislation should be read to require approval of a particular project, if a petitioner has not met its burden of proof on the relevant 248 criteria. Rather, it recognizes that any finding that purchases under a power purchase contract furthers state renewable-energy

10. *Id.*

11. GMP Brief at 9.

objectives does provide a basis of support for that contract. For example, in two recent dockets addressing utility construction of renewable generation facilities, the Board has adopted findings that link goals for renewable resources to the demonstration of need under Section 248(b)(2).[12]

In light of the state renewable-energy objectives, policies and requirements as set forth in Chapter 89 of Title 30, GMP's power supply portfolio will need to include some new renewable resources in a significant, but as yet undetermined, amount. As such, there is sufficient basis to conclude that the purchase of new renewable resources under the PPA (constituting approximately 3.8% of GMP's expected annual energy requirements) is required to meet the need for present and future demand for service. As discussed further below, this need for additional new renewable resources is also relevant to conclusions about economic benefit.

System Stability and Reliability; Service by Existing Infrastructure

[30 V.S.A. §§ 248(b)(3), 248(b)(10)]

28. Neither the Project nor the transmission of power purchased under the PPA will adversely affect system stability or reliability. The purchase can be served economically by existing or planned transmission resources. *See* findings 29 to 31, below; exh. GMP-8 at 3; Smith pf. at 32-33.

29. The Project is subject to ISO-NE's Large Generating Facility interconnection procedures, and is thereby required to extensively study the Project's effect on the regional and local transmission system. To the extent that these studies conclude that the system would be negatively affected by the connection of the Project, the developer must commit to, and pay for, transmission improvements or alter the Project until it no longer causes negative reliability outcomes. This process is administered under a tariff filed at the Federal Energy Regulatory Commission (ISO Open Access Transmission Tariff ("OATT") Schedule 22) and the ISO-NE Reliability Committee is charged with evaluating a project's study outcomes and upgrade determinations within the process. Smith pf. at 32-33.

12. Docket 7514, Order of 7/29/09 at 4 (the only findings supporting need relate to furthering SPEED goals); Docket 7601, Order of 5/4/10 at 5-6 (findings on need related to renewable resource requirements and goals).

30. On July 21, 2009, the Project's Proposed Plan Application was approved by the ISO-NE Reliability Committee. Granite received a letter from ISO New England certifying this finding and noting the various agreements achieved between the Project and the affected transmission owner for the necessary system upgrades. This positive reliability finding, along with sections of the PPA that state that GMP is not responsible for any transmission costs incurred by the Project to transmit the energy to the delivery point, ensure that the power from the Project will not be economically affected by any of the required transmission upgrades. Additionally, after the delivery point and at the bulk transmission system in New England, it is the responsibility of load, not generation, under Schedule 21 of the ISO New England OATT to support the ongoing cost of the transmission system. Smith pf. at 33; exh. GMP-4.

31. No new Vermont transmission lines will be required to import Project power. Smith pf. at 37.

Economic Benefit to the State

[30 V.S.A. § 248(b)(4)]

32. GMP's purchase under the PPA will provide an economic benefit to the state. *See* findings 33 to 49 below; exh. GMP-8 at 3; Smith pf. at 33.

33. The PPA will provide a long-term new renewable power source that is stably priced, at prices that are favorable compared to other new renewable alternatives that are presently available. This purchase will increase the price stability of GMP's supply portfolio, reducing ratepayer exposure to market-price uncertainty driven by fossil-fuel price volatility and other factors. Smith pf. at 33-34.

Request for Proposals

34. In November 2008, GMP, CVPS, and Vermont Electric Cooperative, Inc. ("VEC") issued a Request for Proposals ("RFP") for supply resources. These utilities received 33 proposals in response to the RFP, representing 1,820 MW. The proposed resources included a variety of fuels. More than 425 MW of the proposed resources were so-called "premium renewables," that is, sources that represent new renewables under Vermont's SPEED law and

would qualify as Class 1 renewables under Renewable Portfolio Standards in neighboring states. Smith pf. at 9-10; exh. GMP-5; tr. 3/22/10 at 73-74 (Smith).

35. For purposes of comparing the cost of the PPA to alternative non-intermittent sources, GMP applied a moderate discount to the projected market value of the PPA's output. This adjustment was intended to compensate for the direct costs of wind's intermittence along with the potential that, in the future, some amount of operational costs associated with integrating wind resources into the ISO-NE market may be assigned to those wind resources. Smith pf. at 23.

36. The PPA was the lowest-priced source within the premium renewable project category from the RFP with which GMP has been able to develop a binding agreement. Smith pf. at 9-10.

37. When considering the price (cents per kWh for energy and dollars per kW/month for capacity) combined with other factors that determine the value of the power (such as location, profile of output across the year, time of day, etc.), the PPA was the most cost-effective premium renewable resource that responded to the RFP. Tr. 3/22/10 at 74-75 (Smith); tr. 3/22/10 at 75 (Foley).

PPA Price

38. During the past several years, GMP has engaged in bilateral discussions with numerous proposed premium renewable projects in Vermont and neighboring states. These include other wind projects, along with projects based on other production technologies that include solar, new-build biomass, and biomass retrofits. The PPA is an attractively priced resource. This experience is consistent with consultant assessments that in New England, utility-scale wind is presently the most cost-effective premium renewable technology that can be built on a large scale. Smith pf. at 10.

39. When GMP entered into the PPA, and current market values for renewable attributes were taken into consideration, the effective price under the PPA was comparable in its early years to proposals received for all-hours, energy-only system contracts. However, in recent months, near-term forward-market prices have declined so that the initial price under the PPA will be somewhat higher than current market indications. Smith pf. at 10; tr. 3/22/10 at 9 (Smith).

40. Payments for energy and RECs will be based on the amount of energy the Project actually produces. If the Project produces less energy than expected, GMP will pay less. Similarly, GMP will only pay for the actual capacity value (in kW) that the Project provides in the ISO-NE capacity market. Smith pf. at 15.

41. The financial effect of wind output fluctuations will be limited to the difference between the PPA price and then-current spot-market prices for energy and RECs. The financial impact of low wind-production events on GMP's portfolio will tend to be limited by the fact that large energy price spikes are infrequent, and GMP's existing portfolio contains substantial amounts of intermediate and peaking capacity that can be utilized during infrequent combinations of market-price spikes and low-wind output. Smith pf. at 23.

42. GMP expects that the Project's energy output will achieve market-clearing-price (Locational Marginal Price or "LMP") revenues that are modestly lower than the all-hours average. The PPA's separate pricing for peak and off-peak hours provides some protection for customers against the potential that the actual fraction of output during the off-peak hours exceeds current projections. Smith pf. at 20-21.

Hedging

43. Electricity market prices are volatile and the range of potential future electricity and REC market prices is wide. From a portfolio perspective, it is appropriate to hedge a portion of GMP's projected power supply needs with long-term resources like the PPA, thereby reducing customers' exposure to both higher- and lower-price outcomes. Smith pf. at 12.

44. Because the PPA price will be stable, escalating at a fixed (and modest) rate, and the PPA volumes will be relatively stable over periods of multiple months and years, it is expected to operate as hedge against the influences that affect market prices across months and years (e.g., fossil fuel prices, national "cap and trade" limits on greenhouse gas emissions, regional electricity supply/demand changes). Because these are the greatest uncertainties affecting long-term wholesale electricity prices, the PPA should effectively protect GMP customers from long-term market-price variations, albeit not as effectively as a fixed block of energy would. Smith pf. at 22.

45. The intermittence of the wind output will tend to reduce the effectiveness of the PPA as a hedge against electricity market-price changes of shorter durations (e.g., from an hour to a month). The PPA will be a less consistent hedge against temporary extreme energy price "spikes" that can occur (typically for a few hours at a time) during extremely high electricity demand and/or outages of major generating units, because it is possible that during the few hours of the price spike, the wind may not be blowing. The Project's winter-weighted production profile will tend to make it a more effective hedge against winter price spikes driven by cold weather and fossil-fuel price spikes, while its lower summer output will tend to make it a less effective hedge against summer price spikes. Smith pf. at 22.

Other Economic Benefits

46. The PPA will increase the diversity of GMP's supply portfolio, in terms of technology and fuel source. The Granite purchase will be only the second significant wind power source in the Company's portfolio, after the existing Searsburg plant which produces roughly 0.5 percent of GMP's power needs. Smith pf. at 14.

47. The PPA's lack of credit provisions that would require either party to post collateral based on corporate credit ratings to secure their responsibilities under the contract is appropriate, due primarily to the PPA's long term and the type of facility. Despite the PPA's limited size, its 20-year term means that more rigorous collateral requirements (of the type that may be seen in shorter-term fixed-price system energy purchases) could potentially produce very large collateral-posting requirements (i.e., many millions of dollars). This level of potential collateral posting would probably be financially infeasible for Granite and/or for GMP, or could materially increase the effective price of the purchase. Smith pf. at 8.

48. The Project's output can be expected to lower market energy prices in New England, under certain circumstances. The lowering of market energy prices (or "suppression") results from the economic dispatch process of ISO-NE, under which the market clearing price (or LMP) is established by the highest-priced bid selected for operation. Introduction of zero-cost energy from the wind project into the ISO-NE system will displace output from the marginal (price-setting) sources which are usually fossil-fired generating units. During hours without

transmission constraints, this displacement could occur almost anywhere in New England; if congestion is present the displacement may be limited to generating units closer to the Granite project. Smith pf. at 36.

49. In some hours, energy displacement may have little or no effect on the energy market price, because the marginal (price-setting) resource remains the same. In other hours, displacement will cause a lower-cost generating resource to become the price-setting one, resulting in a lower LMP. During some hours — particularly during "superpeak" hours in which the price-setting portion of the ISO-NE bid stack is steep, a small displacement can produce a disproportionately large LMP decrease. Over the course of many hours, this will tend to lower spot market prices and forward market prices, benefiting power buyers like GMP and other Vermont distribution utilities. Because of this, the PPA's emission-displacement and price-suppression effects will benefit the state environmentally and economically. Smith pf. at 36-37.

Discussion

The PPA will provide a long-term new renewable power source that is stably priced, at prices that are favorable compared to other new renewable alternatives that are presently available. It will increase the price stability of GMP's supply portfolio, reducing ratepayer exposure to market-price uncertainty driven by fossil-fuel price volatility and other factors. Other economic benefits of the PPA include an increase in the diversity of GMP's power portfolio, both in terms of fuel type and technology, and the lack of a collateral requirement. In addition, the PPA includes provisions designed to reduce the risks associated with wind's intermittent nature. These provisions include the PPA's separate peak and off-peak pricing and the fact that GMP will be required to purchase only the power actually produced by the Project.

Furthermore, the principles of least-cost planning under Section 218c require the consideration of both economic and environmental costs, and provide that economic costs be determined with regard to greenhouse gas risks and reduction goals. In previous orders, the Board has recognized the economic and other benefits of wind resources to Vermont and the region.[13] These benefits include increasing the technology and fuel diversity of supply resources and

13. Docket No. 7156, Order of 8/8/07 at 3 and 38-39; Docket No. 6911, Order of 7/17/06 at 101-102.

reducing air emissions and any adverse economic impact from prospective federal legislation and regulation related to global climate change.[14] The PPA provides a long-term stably priced contract for this resource from an out-of-state facility.

While the initial price in the PPA will be somewhat higher than current market projections, GMP persuasively argues that the PPA is the most cost-effective premium renewable resource that responded to the RFP issued by GMP, CVPS, and VEC; the DPS concurs with this assessment.

GMP also contends that the PPA would be desirable even in the absence of the SPEED legislation.[15] However, as discussed above in connection with the Section 248(b)(2) criterion, there exists a need for GMP to include some new renewable resources in its long-term supply portfolio to meet the objectives for new renewable resources established in state law. With this need presumed, there is ample evidence in the record to conclude that the PPA was the best of all available options for new renewable resources among the submitted proposals. Therefore, I recommend that the Board find that the PPA will provide an economic benefit to the state.

Integrated Resource Planning

[30 V.S.A. § 248(b)(6)]

50. GMP's purchase under the PPA is a purchase consistent with the principles for selection expressed in GMP's approved least-cost integrated plan. *See* findings 51 to 52, below; exh. GMP-8 at 3; Smith pf. at 15.

51. As discussed in GMP's 2007 IRP (which was approved in 2008), scenario and sensitivity analyses indicate that robust GMP resource portfolios will include significant amounts of renewable generation, to the extent that they can be developed or purchased cost-effectively. The IRP therefore identifies renewable generation as one of several types of supply resources that should have priority in the Company's planning and procurement in the next few years. The IRP action plan includes exploring opportunities for power purchase agreements with renewable energy sources; the proposed Granite PPA is one result of this effort. Smith pf. at 15-16.

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14. *Id.*; *See also* 30 V.S.A. § 8001(a).

15. GMP Brief at 10.

52. Since its IRP was completed in 2007, GMP's resource-procurement plans have placed an emphasis on seeking a portfolio of resources that achieves three goals: low cost to customers; low carbon emissions; and reliable service. One component of the action plan is to aggressively purchase and build new renewable generation. Smith pf. at 16.

Compliance with Electric Energy Plan

[30 V.S.A. § 248(b)(7)]

53. GMP's purchase under the PPA is in compliance with the electric energy plan approved by the DPS under Section 202 (i.e., the *Vermont Electric Plan*). *See* findings 54 and 55, below; exh. GMP-7; exh. GMP-8 at 3; Smith pf. at 24.

54. The Granite purchase is consistent with the priorities for the future emphasized in Section 10 of the *Vermont Electric Plan*, namely increasing resource diversity and promoting clean and stable sources. The purchase is also consistent with the priority of lowering the cost for electric service, because it is a stably priced and competitively priced renewable power source. The purchase will hedge against potential high-electricity-market outcomes (driven, for example, by fossil-fuel price increases and/or national emission-reduction requirements), and against the realistic possibility that in the future GMP will be required (by state or national law) to procure significant amounts of its electricity supply from new renewable sources. Smith pf. at 24.

55. The DPS has determined that the PPA is consistent with the *Vermont Electric Plan*, in accordance with 30 V.S.A. § 202(f). Exh. GMP-7; exh. GMP-8 at 3.

Outstanding Resource Waters

[30 V.S.A. § 248(b)(8)]

56. The Project will not be located on any outstanding resource waters and will not otherwise affect those waters. Exh. GMP-8 at 3; Smith pf. at 37-38.

IV. DISCUSSION

This investigation and Docket 7589 are the first requests for the issuance of a CPG pursuant to 30 V.S.A. § 248 for a long-term power-supply arrangement since the proceedings to implement the purchase of power from Hydro-Québec under the contract with the Vermont Joint Owners in the late 1980s. Given the need for GMP to obtain new committed supply resources as existing supply arrangements expire over the next several years, it is expected that GMP will be entering into more significant, long-term supply arrangements with out-of-state providers in the near future for which Board approval will be required.

Significant changes in state law have occurred since the Board last approved an out-of-state purchase power agreement, and there exists little guidance as to how Section 248(b) criteria applicable to out-of-state power purchases should be adjusted, applied or interpreted in light of these changes in state law. GMP, the DPS, and CVPS in Docket 7589, have each provided their views as to how these changes in state law affect the application of Section 248(b) criteria.

While the briefing of these issues in this docket has been helpful, it must be emphasized that the proceedings in this docket may provide only limited guidance with respect to future petitions seeking CPGs for power purchase agreements. For example, the more significant commitments to purchase out-of-state power expected to come before the Board in the near future will require substantially more evidentiary support and analysis than was provided with this petition. In addition to building a more detailed evidentiary record, GMP should also seek to address each of the criteria under 248(b) with greater analytical rigor. Furthermore, GMP should not expect that the relatively short time period in which the DPS and the Board reviewed this petition will be applicable to the consideration of future petitions.[16]

A review of the evidentiary submissions of GMP in this docket and CVPS in Docket 7589 reveals some significant differences. In addition to differences in the evidentiary records in the two dockets and substantive differences of opinion related to, for example, the integration of SPEED goals into Section 248 requirements, there was also a difference in emphasis and approach in seeking to meet the burden of proof to support the issuance of a CPG. CVPS emphasized the solicitation, evaluation and selection process to a much greater extent than

16. In this instance, both the DPS and the Board made significant efforts to accommodate the desired timetable of GMP, which was dictated by contractual provisions of the PPA.

GMP.[17] Through this emphasis, CVPS provided important information about the basis and quality of its decision-making process in the selection of the PPA. On the other hand, GMP provided more direct and specific evidence in addressing the applicable criteria under Section 248. The hearing officers believe that CVPS and GMP could each benefit from adopting the strengths of the other's approach in future petitions.

The selection of power-supply resources is a complicated judgment that involves significant trade-offs among a wide variety of relevant factors. Changes in state law since the last out-of-state power contract was approved appear to have increased the number and variety of factors that need to be considered in assessing potential supply resources.

The need to make trade-offs in evaluating power-supply arrangements is nothing new. Significant trade-offs are present even in basic pricing decisions, as lower current prices must be weighed against anticipated future volatility. In addition, some factors to be considered in evaluating power-supply options can be difficult to quantify, such as environmental and other externalities. Therefore, while quantitative tools may assist the decision-making process with respect to certain trade-offs, the selection of power-supply resources ultimately will involve subjective judgments about relevant criteria, the appropriate weighting of relevant criteria and the application of such weighted criteria to specific proposals. From the Board's perspective, it is important that these judgments are as well-informed and well-supported as possible in the context of the requirements and objectives of state law.

With respect to this proceeding, GMP has made a sufficient showing to satisfy the applicable requirements of Section 248 as detailed in the findings above. The purchase of power by GMP under the PPA will help meet the need for new committed power resources and will add new renewable resources to GMP's long-term power-supply portfolio. The price of this resource under the PPA is relatively stable and is priced competitively relative to similar renewable resources. By adding a wind resource to its committed supply portfolio, GMP has increased its technology and fuel diversity and has done so in a manner that would appear to minimize some of the risks associated with this resource.

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17. The difference in presentation may have resulted in part from CVPS's desire to provide support for its "economically used and useful" determination request.

V. CONCLUSION

Based on the record and findings set forth above, I recommend that the Board conclude that the purchase by GMP of electric capacity and energy under the PPA will promote the general good of the state, and that it issue a certificate of public good to this effect.

This Proposal for Decision has been served on all parties to this proceeding in accordance with 3 V.S.A. § 811.

Dated at Montpelier, Vermont, this 12th day of May, 2010.

s/ Ann Bishop
Ann Bishop
Hearing Officer

VI. BOARD DISCUSSION

None of the parties recommended any changes to the Hearing Officer's proposal for decision. GMP filed a letter on May 12, 2010, stating that it had no comments on the proposal for decision.

In a filing on May 11, 2010, the Department stated that it supports adoption of the proposal for decision. The Department noted that its objection to using SPEED goals as a basis for the support of this PPA resulted from (i) its belief that the merits of the PPA were sufficient for its approval without regard to SPEED goals, and (ii) a desire to find common ground with the petitioners in Docket 7589 and Docket 7590 on as narrow a basis as possible given the demands of an expedited schedule. The Department states that its position in these proceedings was not intended to disparage SPEED goals or the efforts of the state's distribution utilities to meet state energy objectives, including SPEED goals. The Department views the proposal for decision "as a template for the approval of future out-of-state power purchase agreements and agrees that the relationship among Section 248, the Energy Efficiency Utility and the SPEED program is one factor to be considered when reviewing petitions under Section 248."

The Board believes that the discussion of issues by the Hearing Officer provides some helpful and constructive guidance with respect to future petitions related to out-of-state power agreements. Furthermore, the Board supports the findings, conclusions and recommendations of the Hearing Officer in this proceeding. However, the Board wishes to emphasize that its decision in this proceeding is specific to the facts and circumstances involving this particular power purchase agreement, including the amount of power to be purchased under the PPA and the fact that there was a settlement among all of the parties. As such, the Board's Order in this docket adopting the Hearing Officer's proposal for decision may have limited relevance to the Board's evaluation of future power purchase agreements.

VII. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that:

1. The findings, discussion and conclusion of the Hearing Officer are adopted.

2. The Memorandum of Understanding, dated March 17, 2010, between Green Mountain Power Corporation ("GMP") and the Vermont Department of Public Service is approved in its entirety.

3. The purchase of capacity and energy by GMP under the Renewable Power Purchase Agreement, dated December 16, 2009, with Granite Reliable Power, LLC, will promote the general good of the State of Vermont in accordance with 30 V.S.A. § 248, and a certificate of public good to that effect shall be issued.

Dated at Montpelier, Vermont, this 13th day of May, 2010.

s/ James Volz)
)
) PUBLIC SERVICE
)
s/ David C. Coen) BOARD
)
) OF VERMONT
s/ John D. Burke)

OFFICE OF THE CLERK

FILED: May 13, 2010

ATTEST: s/ Susan M. Hudson
Clerk of the Board

NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.